

REMARKS/ARGUMENTS

With this Amendment, claim 32 has been amended to correct a minor informality. No new matter is added and no new issues are presented by this self-explanatory amendment. The amendment to claim 32 merely recites what was already previously intended by claim 32. Claims 1-33 are all the claims pending in the present application. Based on the following remarks, Applicant respectfully requests reconsideration of the application and allowance of the claims.

I. Rejection of Claims 1-6, 8-13, 19-24, 26-27 & 29-33 Under 35 U.S.C. § 102(e)

Claims 1-6, 8-13, 19-24, 26-27 and 29-33 stand rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by Valentine et al. (U.S. Patent No. 5,748,678; hereinafter "Valentine").

Claim 1 requires a "method for defining the relationship between frequency and amplitude of *a pulse function modulating a data stream* for transmission in a telecommunications system in accordance with a predetermined modulation scheme to compensate for distortion by a component of the transmitter, wherein the telecommunications system has desired criteria for respective associated *cost parameters*, and the *pulse function for modulating is determined by: defining cost functions* representing the deviation of a respective one of the *cost parameters* from the associated desired system criterion; and defining the amplitude of the pulse function over a range of frequencies in dependence on the cost functions *and the distortion for which compensation is to be made.*"

Applicant submits that Valentine does not teach or suggest the above recitations of claim 1. In the Office Action, the Examiner continues to suggest that column 1, lines 9-40, column 4, lines 9-32 and FIG. 4 of Valentine teach all of the features of claim 1. Applicant respectfully disagrees and submits that the Examiner is giving the reference credit for more than it actually teaches.

In contrast to claim 1, and as pointed out in the Amendment filed July 12, 2006, Valentine is directed to a radio apparatus that reduces distortion caused by interference (i.e., "adjacent channel splatter") from an adjacent channel when the radio apparatus 10 operates in a non-linear region. (Col. 1, lines 23-27) In particular, Valentine discloses the use of a pre-

distortion system utilizing a training routine to reduce intermodulation products in adjacent channels (i.e., adjacent channel splatter). (Abstract) As shown in FIG. 4 of Valentine, input signals (i.e., baseband signals I, Q) are selectably provided (via switch 62) to either a full-rate modulator 64 or a half-rate modulator 66 (and a root raised cosine filter 70) where they are modulated prior to being sent to a transmitter chain of the transmitter. Valentine discloses that during training the half-rate modulator 66 is selected.

More particularly, during training, Valentine discusses that the modulated input signals (I, Q) are fed in parallel to pre-distortion circuit 28 and baseband processor 30. The pre-distortion circuit 28 pre-distorts the baseband signals where they are processed in the “transmitter chain passing through filter 72,” digital to analog converter 32, and power amplifier 36 where the signals are amplified for supplying to antenna 38. (Col. 4, lines 20-24) Coupler 40 samples a portion of the signal output by power amplifier 36 so that the baseband processor 30 can compare the original signals (undistorted I and Q signals) with the fed back signals and derive information on the gain and phase changes introduced in the amplified signal in passing through the transmitter chain. From this information, which is stored in a memory, digital processing applies a curve-fit routine to the pre-distortion circuit 28 to pre-distort the baseband signals. (Col. 3, lines 40-43) As such, Valentine discloses that the modulated baseband signals (I, Q) are processed in a manner which is complementary to that introduced in the transmitter amplifier chain so that distortion is substantially cancelled and the radio apparatus 10 meets the required level of adjacent channel performance. (Col. 3, lines 12-14 and lines 18-24; Col. 4, lines 33-46)

The cited portion of Valentine discusses that “[d]uring training the reduced rate modulator is selected so that modulated signals” (I, Q) “are transmitted at reduced rates which reduce intermodulation products in adjacent channels which typically occurs during training (Col. 4, lines 27-32; See Col. 3, lines 58-63; See also Col. 2, lines 34-36) On the other hand, Valentine describes that “the full rate modulator is employed during normal operation, after training, when full linearization has been achieved, for transmitting normal traffic.” (Col. 4, lines 27-32)

In view of the foregoing, Valentine merely discloses the adjustment of a pre-distortion circuit 28 which adjusts baseband signals (via a training routine) following modulation of the

baseband signals. Given that Valentine discloses adjusting baseband signals after modulation of the baseband signals, Valentine does not teach or suggest at least adjusting a pulse function *that is used for modulating* a data stream for transmission to compensate for distortion by a component of the transmitter, as required by claim 1.

As an initial matter, the Examiner has not responded to the argument set forth above and specifically at pages 9-10 of the Amendment filed on July 12, 2006. However, MPEP § 707.07(f) requires that “[w]here the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant’s argument and answer the substance of it.” (emphasis added) In contrast to the requirements of MPEP § 707.07(f), the Examiner has not responded to Applicant’s argument above that since Valentine discloses adjusting baseband signals after modulation of the baseband signals, Valentine does not teach or suggest at least adjusting a pulse function *that is used for modulating* a data stream for transmission to compensate for distortion by a component of the transmitter, as claimed. To the contrary, the grounds of rejection merely contain the sweeping assertion that “the claimed invention can be broadly interpreted to read upon the prior art of record,” without providing any substantive explanation whatsoever regarding the argument presented above. Accordingly, this argument remains rebutted, and independent claim 1 is allowable *at least* for those reasons previously of record.

Despite the Examiner’s failure to answer the substance of the above argument, Applicant notes that in the *Response to the Arguments* section of the Office Action, the Examiner posits that the rates of modulation in Valentine correspond to the claimed cost functions and that the interference on adjacent channels corresponds to the claimed cost parameters. (See paragraph 2 on pg. 2 of the Office Action) However, Applicant submits that the Examiner is misconstruing the teachings of Valentine. Nowhere in Valentine is there any mention of cost functions and cost parameters. There simply is no expressed or implied teaching or suggestion in Valentine relating to “cost functions [that] are rates of modulation” and “cost parameters, which are interference on adjacent channels,” as suggested by the Examiner. (See *id.*)

Claim 1 requires, *inter alia*, *defining cost functions* representing the deviation of a respective one of the *cost parameters* from the associated desired system criterion. As pointed out in the Amendment filed July 12, 2006, one skilled in the art would not construe the rates of

modulation (i.e., full-rate modulation and half-rate modulation) in Valentine to be cost functions. Rather, those skilled in the art clearly understand that cost functions are functions which are positive and get smaller the better a system operates. (See specification pg. 9, lines 11-12; See also e.g., specification pgs. 16, 17 and 18) In Valentine, the modulation rate is selected as a function of the current phase of the transmitter, i.e., the training phase or the normal operation phase. The modulation rate does not represent the deviation of a cost parameter from a desired system criterion, as required by claim 1.

The modulation rate and thus the associated pulse function are not even selected depending on the interference on adjacent channels in the Valentine reference as suggested by the Examiner. (See paragraph 2 on pg. 2 of the Office Action)¹ Instead, the selection criterion for the modulation is exclusively “training” or “normal operation.” As pointed out above, Valentine considers the generated interference on adjacent channels in the form of a feedback. The feedback is only used for adjusting a pre-distortion component. This feedback is not provided to the switch 68 selecting between the modulation rates. As such, in contrast to the Examiner’s general allegation, selection of the modulation rate and associated pulse function are not determined on the basis of interference on adjacent channels, as suggested by the Examiner. Moreover, nowhere in Valentine is there any teaching or suggestion that the rates of modulation of Valentine (alleged cost functions) are functions which are positive and get smaller the better a system operates which is the meaning understood by skilled artisans. (See specification pg. 9, lines 11-12)

In view of the foregoing, the modulation rates of Valentine simply are not cost functions and a skilled artisan would not construe the modulation rates to be cost functions either. Additionally, the interference on adjacent channels of Valentine simply are not cost parameters and a skilled artisan would not construe the interference on adjacent channels to be cost parameters. Applicant therefore submits that Valentine fails to teach or suggest at least “*defining cost functions* representing the *deviation* of a respective one of the *cost parameters* from the associated desired system criterion, as claimed.

¹ Where the Examiner alleges that “[t]he cost functions are the rates of modulation *and are determined by the cost parameters, which are interference on adjacent channels.*” (emphasis added)

Claim 1 also recites, *inter alia*, the pulse function for modulating is determined by: “defining the amplitude of the pulse function over a range of frequencies in dependence on the cost functions and the distortion for which compensation is to be made.” In the Amendment filed July 12, 2006, it was pointed out that contrary to the Examiner’s assertion, Valentine merely discloses that baseband signals (I, Q) are adjusted after being modulated based on gain and phase changes introduced into the amplified signal passing through the transmitter chain. Nowhere in Valentine is there any teaching or suggestion, and the Examiner cites to none, that the amplitude of baseband signals of Valentine over a range of frequencies is dependent on “the cost function” (which the Examiner alleges corresponds to the rates of modulation of Valentine) “and the distortion for which compensation is to be made,” as contended by the Examiner. (See pg. 5 of the Office Action) (emphasis added) In rejecting claim 1, the Examiner posits that Valentine teaches this feature because “[t]he amplitude of the pulse function over a range of frequencies is dependent on the cost function and the distortion for which compensation is to be made is then conducted by filtering the signal in the half rate modulation path.” (See *id.*) (emphasis added)

In the *Response to the Arguments* section of the Office Action, the Examiner posits that Valentine defines “the amplitude of pulse functions modulating a data stream over a range of frequencies in dependence of cost functions and ... distortion.” (See paragraph 2 on pg. 2 of the Office Action) Even *assuming arguendo* that the pulse functions resulting from the modulators have different amplitudes over a range of frequencies, these distributions do not depend on a cost function and distortion, as suggested by the Examiner. The Examiner asserts that the “amplitude is dependent on the cost function” (alleged rates of modulation) “since, ... the half rate modulation is selected, ... to remove the interference on adjacent channels.” (See paragraph 2 on pg. 2 of the Office Action) Applicant submits that this assertion, by the Examiner, appears to suggest that the interference is now considered by the Examiner as a cost function, while the modulation rate is the cost parameter, which is in contradiction to the Examiner’s assertion that the “cost functions are the rates of modulation” and the “cost parameters ... are interference on adjacent channels. (See *id.*) As such, the interrelationship of claim elements is simply not taught

by Valentine. (See MPEP § 2131)² Applicant submits that the Examiner's interpretation of Valentine does not teach or suggest the features of claim 1. In particular, Applicant submits that the interference cannot be considered to represent the deviation of the current modulation rate from a desired system criterion. Further, there would be no reason, from the point of view of cost function and distortion, to switch from the half rate modulation to the full rate modulation once a linearization and thus a low interference has been obtained, since the full rate modulation will never result in a lower interference than the half rate modulation. Given that there is no reason to switch from the half rate modulation to the full rate modulation once a linearization and a low interference has been obtained and since the full rate modulation will not result in a lower interference than the half rate modulation, Valentine fails to teach or suggest at least "the pulse function for modulating is determined by: defining cost functions ... *and* defining the amplitude of the pulse function over a range of frequencies in *dependence* on the *cost function and* the *distortion* for which compensation is to be made," as claimed.

For at least the foregoing reasons, Applicant respectfully submits that Valentine does not teach or suggest all of the features of claim 1. Applicant therefore respectfully requests the Examiner to reconsider and withdraw the § 102(e) rejection of claim 1 and its dependent claims 2, 3, 4, 5, 6, 7, 8, 9, 17 and 18.

In the Office Action, the Examiner relies on column 1, lines 9-40, column 4, lines 9-32 and FIG. 4 of Valentine as teaching the features of claim 10. (See paragraph 3 on pg. 5 of the Office Action) Applicant respectfully disagrees.

Given that claim 10 contains features that are analogous to, though not necessarily coextensive with, the features recited in claim 1, Applicant respectfully submits that claim 10 is patentable at least for reasons analogous to those submitted for claim 1. Applicant therefore respectfully requests the Examiner to reconsider and withdraw the § 102(e) rejection of claim 10 and its dependent claims 11, 12, 13, 14, 15, 16, 19, 20, 21 and 22.

Additionally as pointed out in the Amendment filed July 12, 2006, Applicant submits that Valentine does not teach or suggest at least "[a] method for defining ... a *pulse function for acting on a data stream* ... for compensate for distortion by *first and second components* of the

² Explaining that to anticipate a claim, the elements of a reference "must be arranged as required by the claim."

transmitter ...,” as required by claim 10. Instead, Valentine at best, discusses that the transmitter disclosed therein is for adjusting baseband signals to compensate for adjacent channel splatter “introduced by the power amplifier” 36 of the transmitter disclosed therein. (See Abstract; See also Col. 2, lines 32-34) Nowhere in the disclosure of Valentine, and the Examiner cites to none, is there any teaching or suggestion relating to compensating “for distortion by first *and second components* of the transmitter, as required by claim 10. Since Valentine merely discloses adjusting baseband signals based on adjacent channel splatter generated by a single element, such as the power amplifier 36, Valentine also fails to teach or suggest “defining the cost parameters for *the second component* on the basis of the distortion to be compensated for in the *second component*,” as required by claim 10.

In the *Response to the Arguments* section of the Office Action, the Examiner merely posits that “[t]he power of the transmitter [of Valentine] is generated by the numerous components shown in figure 4” and that “[t]he power generated by these components is what is compensated for.” (See pg. 3 of the Office Action) Even *assuming arguendo* that more than one component of the transmitter of Valentine is used for compensating the power which generates distortion on adjacent channels as suggested by the Examiner, Valentine still does not teach or suggest the features of claim 10.

Nowhere in Valentine, and the Examiner cites to none, is there any teaching or suggestion relating to defining *the desired* cost parameters (alleged interference on adjacent channels) for the first component of a transmitter and defining *the* cost parameters (alleged interference on adjacent channels) for the second component of the transmitter on the basis of the distortion to be compensated for in the second component, as claimed. Valentine is simply altogether silent regarding defining cost parameters (alleged interference on adjacent channels) for first and second elements of the transmitter 12. As conceded by the Examiner, Valentine, at best discloses that the half-rate modulator 66, i.e., a single component, “is selected to remove the interference on adjacent channels.” (See last paragraph on pg. 2 and lines 1-2 on pg. 3 of the Office Action)

Additionally, given that Valentine merely discloses adjusting baseband signals based on adjacent channel splatter generated by a single element, i.e., the half-rate modulator 66, Valentine also fails to teach or suggest “defining the amplitude of the pulse function over a range

of frequencies in *dependence* upon the *distortion functions* of the *second* component *and* the pulse function defined for *the first* component, as claimed. Nowhere in Valentine is there any teaching or suggestion, and the Examiner cites to none, relating to defining pulse functions over a frequency range depending on distortion of a second component of a transmitter and a pulse function defined for a first component of a transmitter, as required by claim 10.

For at least these additional reasons, Applicant respectfully submits that Valentine does not teach or suggest all of the features of claim 10. Applicant therefore respectfully requests the Examiner to reconsider and withdraw the § 102(e) rejection of independent claim 10 and its dependent claims 11, 12, 13, 14, 15, 16, 19, 20, 21 and 22.

Since claim 23 contains features that are analogous to, though not necessarily coextensive with, the features recited in claim 1, Applicant respectfully requests the Examiner to reconsider and withdraw the § 102(e) rejection of claim 23.

With further regard to claim 23, Applicant submits that Valentine does not teach or suggest *a pulse function generator* arranged to convert a data stream in accordance with a pulse function shaped by defining ... frequency and amplitude of a pulse function ... *the pulse function generator comprising, inter alia*, “means for defining cost functions and means for defining the amplitude of the pulse function ...” As such, claim 23 requires “a” pulse function generator, i.e. a single pulse function generator, which converts a pulse function *shaped* by defining a relationship between frequency and amplitude, among other elements. In contrast to claim 23, Valentine does not disclose that the pulses disclosed therein are provided by “a” pulse generator, i.e. a *single* pulse generator, having a pulse function that can be *shaped* depending on some criterion. Instead, Valentine uses two modulators, which both use a fixed pulse shape. Also, the additional filtering following upon the half rate modulator is fixed. Valentine therefore discloses two pulse generators for providing exactly two pulse shapes. Applicant therefore respectfully submits that Valentine does not teach or suggest the features of claim 23 for this additional reason.

Because claim 24 contains features that are analogous to, though not necessarily coextensive with, the features recited in claim 23, Applicant respectfully requests the Examiner to reconsider and withdraw the § 102(e) rejection of claim 24 and its dependent claim 25. Notwithstanding the Examiner’s assertion to the contrary, for at least the reasons discussed

above, Applicant submits that the recitations of claim 24 contain structural elements not met by Valentine.

Since claim 26 contains features that are analogous to, though not necessarily coextensive with, the features recited in claim 24, Applicant respectfully requests the Examiner to reconsider and withdraw the § 102(e) rejection of claim 26, for at least the reasons submitted for claim 24. Notwithstanding the Examiner's assertion to the contrary, for at least the reasons discussed above, Applicant submits that the recitations of claim 26 contain structural elements not met by Valentine.

Because claim 27 contains features that are analogous to, though not necessarily coextensive with, the features recited in claim 26, Applicant respectfully requests the Examiner to reconsider and withdraw the § 102(e) rejection of claim 27. Despite the Examiner's assertion to the contrary, for at least the reasons discussed above, Applicant submits that the recitations of claim 27 contain structural elements not met by Valentine.

Given that claim 29 contains features that are analogous to, though not necessarily coextensive with, the features recited in claim 1, Applicant submits that claim 29 is patentable at least for reasons analogous to those submitted for claim 1. Applicant therefore respectfully requests the Examiner to reconsider and withdraw the § 102(e) rejection of independent claim 29 and its dependent claims 30 and 31.

With further regard to claim 29, Applicant submits that Valentine does not teach or suggest at least "a dual mode communication device operable in a *first* mode when a *first set of cost parameters* are desired and in a *second* mode when a *second set of cost parameters* are desired," as claimed. In rejecting claim 29, the Examiner relies on FIG. 4 of Valentine. (See pg. 6 of the Office Action). Applicant respectfully disagrees. In the Amendment filed July 12, 2006 it was pointed out to the Examiner that nowhere in Valentine is there any teaching or suggestion that the radio apparatus 10 disclosed therein operates in a first mode when a first set of cost parameters are desired and a second mode when a second set of cost parameters are desired.

In the *Response to the Arguments* section of the Office Action, the Examiner merely asserts that the "first set of cost parameters is the interference present on adjacent channels when full rate modulation is to take place" and [t]he second set of cost parameters is the interference present on adjacent channels when half rate modulation is to take place." (See pg. 3 of the

Office Action) Even *assuming arguendo* that the Examiner's contention is correct, Valentine still does not teach or suggest all of the features of claim 29.

Claim 29 requires *a dual mode* communication device comprising, *inter alia*, *a first pulse function generator* for converting a data stream in accordance with a pulse function *shaped in dependence* on the first set of desired cost parameters and *a second pulse function generator* for converting a data stream in accordance with a pulse function *shaped in dependence* on the second set of desired cost parameters. In contrast to claim 29, nowhere in Valentine is there any teaching or suggestion (and the Examiner cites to none) relating to a dual mode device having two pulse function generators of which at least *one* provides *shapable pulse functions*. Rather, Valentine, at best, discloses use of two modulators, but *both* modulators use a fixed pulse shape. Also, the additional filtering following upon the half rate modulator is fixed. Since Valentine does not teach or suggest first and second pulse function generators providing shapable pulse functions, as claimed, Valentine does not teach or suggest the features of claim 29 and its dependent claims 30 and 31 for at least these additional reasons.

Concerning claim 32, Applicant submits that Valentine does not teach or suggest “[a] dual mode communication device operable in *a first mode* when *a first set* of cost parameters are desired and in *a second mode* when *a second set* of cost parameters are desired, the dual mode communication device comprising, *inter alia*, *a modulator* for modulating a data stream with a carrier signal in accordance with a predetermined modulation scheme in *both the first and second modes* of operation,” as claimed. On pages 6-7 of the Office Action, the Examiner relies on FIG. 4 of Valentine as teaching the features of claim 32. Applicant disagrees.

In the Amendment filed July 12, 2006, it was pointed out to the Examiner that in contrast to claim 32, Valentine, at best, discloses a full rate modulator 64 for operation during a normal operation and a half rate modulator 66 for operation during a training routine, as discussed above. Specifically, Valentine discusses that the half rate modulator 66 is employed during the training routine to reduce adjacent channel splatter. Given that Valentine utilizes two different modulators, i.e., one during normal operation and one during a training routine, Valentine is incapable of teaching or suggesting a single “modulator for modulating a data stream ... in *both the first and second modes* of operation,” as required by claim 32.

In the *Response to Arguments* section of the Office Action, the Examiner merely alleges that Valentine discloses “a pulse function for a second modulation scheme for the same desired cost parameters.” (See pg. 4 of the Office Action) The reasoning for the Examiner’s contention appears to be that “Valentine discloses the dual mode device using a full rate modulation scheme and the half rate modulation scheme.” (See *id.*) In contrast to the Examiner’s general assertion, Valentine explicitly indicates that the half rate modulation uses the *normal modulation scheme* (col. 4, lines 65-67), and thus the *same* modulation scheme is used during half rate modulation as during full rate modulation. Consequently, Valentine does not disclose the use of *two modulation schemes*, and as such Valentine does not teach or suggest a dual mode communication device comprising, *inter alia*, a modulator for modulating a data stream with a carrier signal in accordance with a predetermined modulation scheme in *both the first and second modes* of operation, as required by claim 32.

Additionally, claim 32 requires, *inter alia*, a first pulse function generator for shaping a data stream ... in dependence on the first set of desired cost parameters and a second pulse function generator for shaping a data stream ... in dependence on the second set of desired cost parameters.” As pointed out above, Valentine does not teach or suggest a device with two pulse function generators, which *both* provide *shapable pulse functions* based on *two sets of cost parameters*, as required by claim 32. Rather, as noted above, Valentine, at best, uses two modulators, but *both* use a fixed pulse shape. Also, the additional filtering following upon the half rate modulator in Valentine is fixed. On page 3 of the Office Action, the Examiner alleges that Valentine teaches that a first set of parameters is the interference which is present with full-rate modulation and that second set of parameters is the interference which is present with half-rate modulation. Notwithstanding the Examiner’s general allegation to the contrary, the system requirement in Valentine is linearization and there are no different parameters for the half-rate modulation and the full rate modulation of Valentine. Given that Valentine does not teach or suggest a device with two pulse function generators, which both provide shapable pulse functions based on two sets of cost parameters, Valentine does not teach or suggest at least a dual mode communication device comprising, *inter alia*, a first pulse function generator for shaping a data stream ... in dependence on *the first set of desired cost parameters* and a second pulse function generator for shaping a data stream ... in dependence on *the second set of desired cost*

parameters,” as claimed. Applicant therefore respectfully requests the Examiner to reconsider and withdraw the § 102(e) rejection of claim 32.

Given that claim 33 contains features that are analogous to, though not necessarily coextensive with, the features recited in independent claim 1, Applicant submits that claim 33 is patentable at least for reasons analogous to those submitted for claim 1. Applicant therefore respectfully requests the Examiner to reconsider and withdraw the § 102(e) rejection of independent claim 33.

With further regard to claim 33, Applicant submits that Valentine does not teach or suggest at least “defining a pulse function for *a first modulation scheme* ...” and “defining a pulse function for *a second modulation scheme* for *the same* desired cost parameters,” as claimed. In the Office Action, the Examiner relies on column 1, lines 9-40, column 4, lines 9-32 and FIG. 4 of Valentine as teaching the features of claim 33. Applicant respectfully disagrees.

As pointed out in the Amendment filed July 12, 2006, in contrast to the Examiner’s general assertion that Valentine teaches the features of claim 33, Applicant submits that Valentine, at best, discloses that the half rate modulator 66 is employed during a training routine to reduce adjacent channel splatter whereas the full rate modulator 64 is employed during normal operation, after training when full linearization has been achieved. Col. 4, lines 27-32. Nowhere in Valentine is there any teaching or suggestion, and the Examiner cites to none, relating to defining a pulse function for the half rate modulator 66 (or alternately, the full rate modulator 64) using the *same* desired cost parameters for defining a pulse function for the full rate modulator 64 (or alternately, the half rate modulator 66).

Based on at least the foregoing, Valentine fails to teach or suggest “defining a pulse function for *a first modulation scheme* ...” and “defining a pulse function for *a second modulation scheme* for the *same desired cost parameters*,” as required by claim 33.

In the *Response to the Arguments* section of the Office Action, the Examiner merely posits that Valentine teaches “defining a pulse function for a second modulation scheme for the same desired cost parameters” because “Valentine discloses the full rate modulation scheme and the half rate modulation scheme.” (See pg. 4 of the Office Action) As noted above with respect to claim 32, Valentine, at best discloses that the half rate modulation uses the “normal modulation scheme” (col. 4, lines 65-67) (emphasis added), and thus the same modulation

scheme is used during half rate modulation as well as during full rate modulation. Consequently, Valentine does not disclose the use of two modulation schemes and fails to teach or suggest at least “defining a pulse function for *a first modulation scheme* ...” and “defining a pulse function for *a second modulation scheme* for *the same* desired cost parameters, as claimed.

In the Amendment filed July 12, 2006, it was also argued that there is no teaching or suggestion in Valentine relating to “determining the resultant cost parameters for each scheme,” as recited by claim 33. Rather, Valentine, at best, discloses the selection of a half rate modulator 66 during a training routine and selection of a full rate modulator 64 during normal operation. Nowhere in Valentine is there any teaching or suggestion relating to a selection of either the half rate modulator 66 or the full rate modulator 64 based on a determination of resultant cost parameters. As such, Valentine also fails to teach or suggest “selecting the modulation scheme which gives resultant cost parameters given desired cost parameters,” as claimed.

In the present Office Action, the Examiner has not responded to the arguments set forth above and specifically at pages 16-17 of the Amendment filed July 12, 2006 in contrast to the directive set forth in MPEP § 707.07(f). Particularly, in contrast to the requirements of MPEP § 707.07(f), the Examiner has not responded to Applicant’s arguments that Valentine fails to teach or suggest or suggest “determining the resultant cost parameters for each scheme,” as required by claim 33. To the contrary, the grounds of rejection merely contain the sweeping assertion that “the claimed invention can be broadly interpreted to read upon the prior art of record,” without providing any substantive explanation whatsoever regarding the above argument that Valentine does not teach or suggest determining the resultant cost parameters for each scheme of a first and modulation scheme, as claimed. Accordingly, this argument remains rebutted, and independent claim 33 is allowable *at least* for those reasons previously of record. Moreover, since Valentine is incapable of teaching or suggesting a *determination of resultant cost parameters* for each of a first modulation scheme and a second modulation scheme, Applicant submits that Valentine is also incapable of teaching or suggestion “selecting the modulation scheme which *gives resultant cost parameters* given desired cost parameters,” as claimed.

For at least these additional reasons, Applicant respectfully requests the Examiner to reconsider and withdraw the § 102(e) rejection of independent claim 33.

II. Rejection of Claims 6 & 7 Under 35 U.S.C. § 103(a)

Claims 6 and 7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Valentine in view of Summers (U.S. Patent No. 5,070,254; hereinafter "Summers"). Applicant respectfully traverses this rejection for at least the following reasons.

As discussed above, Valentine is deficient vis-à-vis independent claim 1. Summers does not compensate for the deficiencies of Valentine. Accordingly, claims 6 and 7 are patentable at least by virtue of their dependencies from claim 1. Applicant therefore respectfully requests the Examiner to reconsider and withdraw the § 103(a) rejection of dependent claims 6 and 7.

III. Rejection of Claims 14, 17 and 18 Under 35 U.S.C. § 103(a)

Claims 14, 17 and 18 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Valentine in view of Miya (U.S. Patent No. 5,572,516; hereinafter "Miya"). Applicant respectfully traverses this rejection for at least the following reasons.

As discussed above, Valentine is deficient vis-à-vis independent claims 1 and 10. Miya does not compensate for the deficiencies of Valentine. Accordingly, claims 14, 17 and 18 are patentable at least by virtue of their respective dependencies from claim 10 and claim 1. Applicant therefore respectfully request the Examiner to reconsider and withdraw the § 103(a) rejection of dependent claims 14, 17 and 18.

IV. Rejection of Claims 15 and 16 Under 35 U.S.C. § 103(a)

Claims 15 and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Valentine in view of Applicant's admitted prior art (APA). Applicant respectfully traverses this rejection for at least the following reasons.

As discussed above, Valentine is deficient vis-à-vis independent claim 10. The APA does not compensate for the deficiencies of Valentine. Accordingly, claims 15 and 16 are patentable at least by virtue of their dependencies from claim 10. Applicant therefore respectfully requests the Examiner to reconsider and withdraw the § 103(a) rejection of dependent claims 15 and 16.

V. Rejection of Claim 25 Under 35 U.S.C. § 103(a)

Claim 25 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Valentine in view of Dent (U.S. Patent No. 5,909,460; hereinafter; "Dent"). Applicant respectfully traverses this rejection for at least the following reasons.

As discussed above, Valentine is deficient vis-à-vis independent claim 24. Dent does not compensate for the deficiencies of Valentine. Accordingly, claim 25 is patentable at least by virtue of its dependency from claim 24. Applicant therefore respectfully request the Examiner to reconsider and withdraw the § 103(a) rejection of dependent claim 25.

VI. Rejection of Claim 28 under 35 U.S.C. § 103(a)

The Examiner rejected claim 28 under 35 U.S.C. § 103(a) as being unpatentable over Miya et al. (U.S. Patent No. 5,572,516; hereinafter; "Miya") in view of Valentine.

Claim 28 requires, "[a] dual mode communication device operable in a first mode in a TDMA telecommunications system in which a channel is a combination frequency and a timeslot and a second mode in a CDMA telecommunications system, comprising," *inter alia*, a pulse function generator for *shaping* a data stream in accordance with respective pulse functions responsive to the mode of operation of the communication device *and distortion* by a component of the transmitter." In rejecting claim 28, the Examiner relies on column 4, line 60 to column 5, line 20 of Miya in combination with column 1, lines 9-40, column 4, lines 9-32 and FIG. 4 of Valentine as teaching the features of claim 28.

In contrast to the Examiner's general allegation, Applicant respectfully submits that the combination of Miya and Valentine does not teach or suggest at least the above features of claim 28. In the rejection of claim 28, the Examiner alleges that "Miya discloses a dual mode communication device operable in a first mode (TDMA) and a second mode (CDMA)" and that "[p]ulses are generated according to the transmission mode selected." (See paragraph 8 on pg. 10 of the Office Action) In the Amendment dated July 12, 2006, it was pointed out that the Examiner correctly conceded that Miya does not disclose a pulse function generator for shaping a data stream in accordance with respective pulse functions responsive to the mode of operation of the communication device and distortion by a component of the transmitter. However, the Examiner continues to rely on Valentine to make up for the deficient teachings of Miya. Applicant respectfully disagrees.

Nowhere in Valentine is there any teaching or suggestion, and the Examiner cites to none, relating to selecting a pulse function depending on distortion, as required by claim 28. Rather, Valentine, at best, discloses selection of a pulse function depending only on a current phase of the system (i.e., training - normal operation). Moreover, Valentine does not teach or suggest a pulse generator which is configured to use a pulse function that depends on an operating mode and distortion. As such, the combination of Miya and Valentine is incapable of teaching and suggesting a dual mode communication device, comprising "a pulse function generator for shaping a data stream in accordance with ... the mode of operation of the communication device," corresponding to a first mode in a TDMA telecommunications system and a second mode in a CDMA telecommunications system, *and distortion* by a component of the transmitter, as claimed.

Additionally, in the Amendment filed July 12, 2006 it was pointed out that even *assuming arguendo* that Miya discloses a dual mode communication device operable in a first mode (TDMA) and a second mode (CDMA) and that pulses are generated according to the transmission mode selected, as suggested by the Examiner, Applicant submits that the combination of Miya and Valentine still does not teach or suggest the features of claim 28. Applicant noted that there is no (expressed or implied) teaching or suggestion in Valentine that the radio apparatus 10 disclosed therein is a dual mode radio apparatus operable in a first mode such as TDMA and a second mode such as CDMA. There is also no expressed or implied suggestion or motivation in Valentine that the radio apparatus 10 disclosed therein is capable of adjusting pulses for both TDMA and CDMA based on distortion generated by a component of the transmitter 12. (See MPEP § 2143.01)

As such, in the Amendment filed July 12, 2006, it was submitted that there simply is no expressed or implied suggestion (or motivation) in Valentine to modify the radio apparatus 10 disclosed therein in the manner suggested by the Examiner. The only teaching comes from Applicant's own disclosure which constitutes impermissible hindsight reconstruction according to *In re Vaack* 20 USPQ2d 1438, 1442 (Fed. Cir. 1991). In the *Response to the Arguments* section of the Office Action, the Examiner simply asserts "it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction of hindsight reasoning. But

so long as it takes into account knowledge which was within the level of ordinary skill ... such a reconstruction is proper.” (See pg. 4 of the Office Action)

Even assuming *arguendo* that this is true, Applicant also argued in the Amendment filed July 12, 2006, there is no expressed or implied teaching or suggestion in Valentine that the radio apparatus 10 disclosed therein is capable of adjusting pulses for both TDMA and CDMA based on distortion generated by a component of the transmitter 12. In contrast, Valentine, at best, suggests that the radio apparatus 10 is capable of adjusting signals that conform to a single digital radio standard. Accordingly, Applicant submitted that the Examiner’s proposed modification changes the principle of operation of the radio apparatus 10 of Valentine which is contrary to the directive set forth in MPEP § 2143.01 which guides the Examiner in such matters. In contrast to the requirements of MPEP § 707.07(f), the Examiner has not responded to Applicant’s argument that the proposed combination changes the principle of operation of the radio apparatus 10 of Valentine. Additionally, the Examiner has not responded to the argument that there is also no expressed or implied suggestion or motivation in Valentine that the radio apparatus 10 disclosed therein is capable of adjusting pulses for both TDMA and CDMA based on distortion generated by a component of the transmitter 12, which is in contrast to the directive set forth in MPEP § 2143.01.

Accordingly, these arguments remain rebutted, and independent claim 28 is allowable *at least* for those reasons previously of record. As such, Applicant submits that the proposed modification is deficient and does not teach or suggest the features of claim 28.

For at least the above reasons, Applicant again submits that an artisan of ordinary skill would not have combined the applied references in the manner suggested by the Examiner to produce the subject matter of claim 28. Accordingly, the Examiner’s proposed modification of Miya and Valentine do not teach or suggest the features of claim 28 and cannot be said to render claim 28 obvious within the meaning of 35 U.S.C. § 103. Applicant therefore respectfully requests the Examiner to reconsider and withdraw the § 103(a) rejection of independent claim 28.

VII. Conclusion

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Amendment Dated December 28, 2006
Reply to Office Action of July 31, 2006

In view of the foregoing remarks, Applicant respectfully submits that all of the claims of the present application are in condition for allowance. It is therefore respectfully requested that a Notice of Allowance be issued in due course. Examiner Burd is encouraged to contact Applicant's undersigned attorney to resolve any remaining issues in order to expedite examination of the present application.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

/Guy R. Gosnell/

Guy R. Gosnell
Registration No. 34,610

Customer No. 00826
ALSTON & BIRD LLP
Bank of America Plaza
101 South Tryon Street, Suite 4000
Charlotte, NC 28280-4000
Tel Charlotte Office (704) 444-1000
Fax Charlotte Office (704) 444-1111
LEGAL02/30204994v3

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